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Third report on shared natural resources: transboundary groundwaters

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Addendum

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I. Introduction

This addendum sets out provisions of legal instruments relevant to some of the draft articles for a convention on the law of transboundary aquifers proposed by the Special Rapporteur in his third report (A/CN.4/551). The extracts are taken not only from treaties but also from non-binding instruments such as declarations and resolutions of intergovernmental organizations as well as codification proposals of non-governmental organizations. The relevant provisions of the United Nations Convention on the Law of the Non-navigational Uses of International Watercourses, 1997, are not quoted here as they are readily available to the members of the Commission.

II. Article 2: Use of terms

(i) Article 2, paragraph 11 of Directive 2000/60/EC of the European Parliament and the Council of the European Union of 23 October 2000 establishing a framework for community action in the field of water policy:

"Aquifer" means a subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater or the abstraction of significant quantities of groundwater.

(ii) United Nations Compensation Commission, report and recommendations made by the Panel of Commissioners concerning the third instalment of "F4" claims (S/AC.26/2003/31, glossary):

Aquifer: Natural water-bearing geological formation found below the surface of the earth.

(iii) Article 1, paragraph 1 of the Bellagio Draft Agreement concerning the Use of Transboundary Groundwaters, 1989:

"Aquifer" means a subsurface water-bearing geologic formation from which significant quantities of water may be extracted.

(iv) Article 3, paragraph 2 of the International Law Association Berlin Rules on Water Resources, 2004:

"Aquifer" means a subsurface layer or layers of geological strata of sufficient porosity and permeability to allow either a flow of or the withdrawal of usable quantities of groundwater.

(v) Article 1, paragraph 2 (a) of Directive 80/68/EEC of the Council of the European Communities of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances; article 2, paragraph 3 of the 1999 Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes; and article 2, paragraph 2 of Directive 2000/60/EC of the European Parliament and the Council of the European Union of 23 October 2000 establishing a framework for community action in the field of water policy:

"Groundwater" means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

(vi) Article 3, paragraph 11 of the International Law Association Berlin Rules on Water Resources, 2004:

"Groundwater" means water beneath the surface of the ground located in a saturated zone and in direct contact with the ground or soil.

III. Article 3, paragraph 1: Bilateral and regional arrangements

(i) Article 118 of the United Nations Convention on the Law of the Sea, 1982, Cooperation of States in the conservation and management of living resources:

States shall cooperate with each other in the conservation and management of living resources in the areas of the high seas. States whose nationals exploit identical living resources, or different living resources in the same area, shall enter into negotiations with a view to taking the measures necessary for the conservation of the living resources concerned. They shall, as appropriate, cooperate to establish subregional or regional fisheries organizations to this end.

(ii) Article 197 of the United Nations Convention on the Law of the Sea, 1982, Cooperation on a global or regional basis:

States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.

IV. Article 3, paragraph 2: Bilateral and regional arrangements (adjustment)

Article 311, paragraph 3 of the United Nations Convention on the Law of the Sea, 1982, Relation to other conventions and international agreements:

Two or more States Parties may conclude agreements modifying or suspending the operation of provisions of this Convention, applicable solely to the relations between them, provided that such agreements do not relate to a provision derogation from which is incompatible with the effective execution of the object and purpose of this Convention, and provided further that such agreements shall not affect the application of the basic principles embodied herein, and that the provisions of such agreements do not affect the enjoyment by other States Parties of their rights or the performance of their obligations under this Convention.

V. Article 3, paragraph 3: Bilateral and regional arrangements (lex specialis)

Article 55 of the draft articles of responsibility of States for internationally wrongful acts, adopted by the International Law Commission at its fifty-third session, Lex Specialis:

These articles do not apply where and to the extent that the conditions for the existence of an internationally wrongful act of the content or implementation of the international responsibility of a State are governed by special rules of international law.

VI. Article 4, paragraph 1: Relation to the Convention on the Law of Non-navigational Uses of International Watercourses, 1997

Article 311, paragraph 1 of the United Nations Convention on the Law of the Sea, 1982, Relation to other conventions and international agreements:

> This Convention shall prevail, as between States Parties, over the Geneva Conventions on the Law of the Sea of 29 April 1958.

VII. Article 4, paragraph 2: Relation to other conventions and international agreements

Article 311, paragraph 2 of the United Nations Convention on the Law of the Sea, 1982, Relation to other conventions and international agreements:

> This Convention shall not alter the rights and obligations of States Parties which arise from other agreements compatible with this Convention and which do not affect the enjoyment by other States Parties of their rights or the performance of their obligations under this Convention.

VIII. Article 5, paragraph 1: Equitable utilization

(i) Article 2 of the Agreement between the Federal Republic of Nigeria and the Republic of Niger concerning the Equitable Sharing in the Development, Conservation and Use of their Common Water Resources, 1990:

> Each Contracting Party is entitled, within its territory, to an equitable share in the development, conservation and use of the water resources in the shared river basins.

(ii) Article 19, paragraph 1 of the Association of South-East Asian Nations Agreement on the Conservation of Nature and Natural Resources, 1985, Shared resources:

> Contracting Parties that share natural resources shall cooperate concerning their conservation and harmonious utilization, taking into account the sovereignty, rights and interests of the Contracting Parties concerned in accordance with generally accepted principles of international law.

(iii) Article 2, paragraph 2 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, General provisions:

> The Parties shall, in particular, take all appropriate measures:

...

(c) to ensure that transboundary waters are used in a reasonable and equitable way, taking into particular account their transboundary character, in the case of activities which cause or are likely to cause transboundary impact;

(iv) Article 4, paragraph 1 of the Agreement between the Government of the People's Republic of China and the Government of Mongolia on the Protection and Utilization of Transboundary Waters, 1994:

The Two Contracting Parties should jointly protect the ecological system of the transboundary waters and develop and utilize transboundary waters in a way that should not be detrimental to the other side. Any development and utilization of transboundary waters should follow the principle of fairness and equability without impeding any reasonable use of transboundary waters.

(v) Article 3, paragraph 7 of the Revised Protocol on Shared Watercourses in the Southern African Development Community, 2000, General principles:

For the purposes of this Protocol the following general principles shall apply:

...

a) Watercourse States shall in their respective territories utilise a shared watercourse in an equitable and reasonable manner. In particular, a shared watercourse shall be used and developed by Watercourse States with a view to attain optimal and sustainable utilisation thereof and benefits therefrom, taking into account the interests of the Watercourse States concerned, consistent with adequate protection of the watercourse for the benefit of current and future generations.

b) Watercourse States shall participate in the use, development and protection of a shared watercourse in an equitable and reasonable manner. Such participation, includes both the right to utilise the watercourse and the duty to cooperate in the protection and development thereof, as provided in this Protocol.

(vi) Principle 1 of the United Nations Environment Programme Principles of conduct in the field of the environment for the guidance of States in the conservation and harmonious utilization of natural resources shared by two or more States, 1978:

It is necessary for States to cooperate in the field of the environment concerning the conservation and harmonious utilization of natural resources shared by two or more States. Accordingly, it is necessary that consistent with the concept of equitable utilization of shared natural resources, States cooperate with a view to controlling, preventing, reducing or eliminating adverse environmental effects which may result from the utilization of such resources. Such cooperation is to take place on an equal footing and taking into account the sovereignty, rights and interests of the States concerned.

(vii) Article 2, paragraph 1 of the Bellagio Draft Agreement concerning the Use of Transboundary Groundwaters, 1989, General purposes:

The Parties recognize their common interest and responsibility in ensuring the reasonable and equitable development and management of groundwaters in the border region for the well being of their peoples.

(viii) Article 42, paragraph 4 of the International Law Association Berlin Rules on Water Resources, 2004, Transboundary aquifers:

Basin States shall cooperate according to the procedures in Chapter XI to set drawdown rates in order to assure the equitable utilization of the waters of an aquifer referred in paragraph 1, having due regard for the obligation not to cause significant harm to other basin States and to the obligation to protect the aquifer.

IX. Article 5, paragraph 2: Reasonable utilization

(i) Article 8 of the Association of South-East Asian Nations Agreement on the Conservation of Nature and Natural Resources, 1985, Water:

1. The Contracting Parties shall, in view of the role of water in the functioning of natural ecosystems, take all appropriate measures towards the conservation of their underground and surface water resources.

2. They shall, to that effect, in particular, endeavour to:

...

(b) regulate and control water utilization with a view to achieving sufficient and continuous supply of water for, inter alia, the maintenance of natural life supporting systems and aquatic fauna and flora;

(ii) Article 2, paragraph 1 of the Convention on Cooperation for the Protection and Sustainable Use of the Danube, 1994, Objectives and principles of cooperation:

The Contracting Parties shall strive at achieving the goals of a sustainable and equitable water management, including the conservation, improvement and the rational use of surface waters and groundwater in the catchment area as far as possible. Moreover the Contracting Parties shall make all efforts to control the hazards originating from accidents involving substances hazardous to water, floods and ice-hazards of the Danube River. Moreover they shall endeavour to contribute to reducing the pollution loads of the Black Sea from sources in the catchment area.

(iii) Article 15 of the Agreement on Cooperation for the Protection and Sustainable Use of the Waters of the Spanish-Portuguese Hydrographic Basins, 1998, Water uses:

1. The Parties recognize each other's right to the sustainable use of the water resources of the Spanish-Portuguese hydrographic basins and their obligation to protect them and to implement, in their respective territories, measures to prevent, eliminate, mitigate and control transborder impacts.

2. The use of the water resources of the Spanish-Portuguese hydrographic basins referred to in the preceding paragraph shall be carried out in a manner consistent with their unity, with the exceptions laid down in this Agreement.

(iv) Article 3 of the Agreement between the Government of the Polish People's Republic and the Government of the Union of Soviet Socialist Republics concerning the Use of Water Resources in Frontier Waters, 1964:

The purpose of this Agreement is to ensure cooperation between the Contracting Parties in economic, scientific and technical activities relating to the use of water resources in frontier waters, including in particular:

...

(7) the protection of surface and groundwaters against depletion and pollution;

(v) Article 9 of the Agreement on the Protection, Utilization and Recharge of the Franco-Swiss Genevese Aquifer, 1977, Limitations:

1. Based on the dimensions and capacity of the artificial recharge installation to be constructed, the French authorities and public collectivities shall ensure that the aggregate of water extractions by the users located within their territory shall not exceed 5,000,000 cubic metres per annum, inclusive of a free allocation of 2,000,000 cubic metres. In case of necessity, derogations to this 5,000,000 cubic metres limit may be agreed to by the Commission upon consultation with the operator.

2. In exceptional circumstances and in order to be able to satisfy their own needs, the Swiss users may request the French users, through the Commission, to forfeit part or whole of their free allocation in their favour. Upon acceptance by the French users, the effective water volumes allocations shall be paid for by the Swiss users at the cubic metre production cost obtained from similar French waterworks, payment conditions being specified at the time of the request.

(vi) Principle 3 of the Stockholm Declaration of the United Nations Conference on the Human Environment, 1972, Renewable resources:

The capacity of the earth to produce vital renewable resources must be maintained and, wherever practicable, restored or improved.

(vii) Principle 5 of the Stockholm Declaration of the United Nations Conference on the Human Environment, 1972, Non-renewable resources:

The non-renewable resources of the earth must be employed in such a way as to guard against the danger of their future exhaustion and to ensure that benefits from such employment are shared by all mankind.

(viii) Section IV of the Charter on Groundwater Management, 1989, adopted by the Economic Commission for Europe at its forty-fourth session, Groundwater allocation:

An appropriate policy should be adopted for preferential allocation of groundwater, giving appropriate weight to competitive uses and balancing short-term demands with long-term objectives in the interest of present and future generations. In allocating groundwater resources, account should be taken of the amount of groundwater in reserve and of the rate of its replenishment. Allocation of high-quality groundwater only to uses demanding high-quality water, in particular for human and animal consumption, should be

encouraged. More emphasis should be given to the nature conservation value provided by groundwater resources, in particular where nature protection areas are vulnerable to changes in groundwater conditions.

X. Article 6: Factors relevant to equitable and reasonable utilization

(i) Article 5 of the Agreement between the Federal Republic of Nigeria and the Republic of Niger concerning the Equitable Sharing in the Development, Conservation and Use of their Common Water Resources, 1990:

1. In determining the equitable share to which each Contracting Party is entitled pursuant to Article 2, the following factors shall be taken into account:

(a) the climate of the region, and its influence on rainfall patterns;

(b) rainfall patterns, and their influence on surface hydrology, and related hydro-geology;

(c) surface hydrology and related hydro-geology;

(d) existing uses of the waters;

(e) reasonable planned water development requirements;

(f) the economic and social development needs of the Contracting Parties;

(g) the dependence of local populations on the waters in question for their own livelihood and welfare;

(h) the availability of alternative sources of water to satisfy competing water demands;

(i) the practicability of compensations either in cash or in kind one or the other Contracting Party as a means of adjusting competing water demands;

(j) maintaining an acceptable environmental balance in and around a particular body of water;

(k) the avoidance of unnecessary waste in the utilization of waters, with due regard for the technological and financial capabilities of each Contracting Party;

(l) the proportion in which each Contracting Party contributes to the water balance of the basin.

2. Each factor is to be given the weight warranted by the circumstances peculiar to each individual river basin, or group of basins, and all factors so weighted are to be considered together and a determination arrived at on the basis of the whole.

(ii) Article 13 of the International Law Association Berlin Rules on Water Resources, 2004, Determining an equitable and reasonable use:

1. Equitable and reasonable use within the meaning of Article 1 is to be determined through consideration of all relevant factors in each particular case.

2. Relevant factors to be considered include, but are not limited to:

a. Geographic, hydrographic, hydrological, hydrogeological, climatic, ecological, and other natural features;

b. The social and economic needs of the basin States concerned;

c. The population dependent on the waters of the international drainage basin in each basin State;

d. The effects of the use or uses of the waters of the international drainage basin in one basin State upon other basin States;

e. Existing and potential uses of the waters of the international drainage basin;

f. Conservation, protection, development, and economy of use of the water resources of the international drainage basin and the costs of measures taken to achieve these purposes;

g. The availability of alternatives, of comparable value, to the particular planned or existing use;

h. The sustainability of proposed or existing uses; and

i. The minimization of environmental harm.

3. The weight of each factor is to be determined by its importance in comparison with other relevant factors. In determining what is a reasonable and equitable use, all relevant factors are to be considered together and a conclusion reached on the basis of the whole.

XI. Article 7: Obligation not to cause harm

(i) Article 9 of the Framework Agreement on the Sava River Basin, 2002, No harm rule:

The Parties shall, in utilizing waters of the Sava River Basin in their territories, cooperate and take all appropriate measures to prevent causing significant harm to other Party(ies).

(ii) Article 15 of the Protocol for Sustainable Development of Lake Victoria Basin, 2003, Prevention of significant harm to neighbours:

1. A Partner State shall, when utilizing the resources of the Basin in its jurisdiction, take all appropriate measures to prevent significant environmental harm to other Partner States.

2. A Partner State shall, in utilizing the natural resources of the Basin take into account the vital economic, social and cultural interest of other Partner States.

(iii) Article 7 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, Responsibility and liability:

The Parties shall support appropriate international efforts to elaborate rules, criteria and procedures in the field of responsibility and liability.

(iv) Article 3 of the draft articles on prevention of transboundary harm from hazardous activities, 2001, adopted by the International Law Commission at its fifty-third session, Prevention:

The State of origin shall take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof.

(v) Article 4 of the International Law Association Berlin Rules on Water Resources, 2004, Transboundary aquifers:

4. Basin States shall cooperate according to the procedures in Chapter XI to set drawdown rates in order to assure the equitable utilization of the waters of an aquifer referred in paragraph 1, having due regard for the obligation not to cause significant harm to other basin States and to the obligation to protect the aquifer.

...

6. Basin States sharing an aquifer referred to in paragraph 1 shall refrain from and prevent acts or omissions within their territory that cause significant harm to another basin State, having due regard to the right of each basin State to make equitable and reasonable use of the waters.

XII. Article 8: General obligation to cooperate

(i) Article 3, paragraph 5 of the Revised Protocol on Shared Watercourses in the Southern African Development Community, 2000, General principles:

State Parties undertake to pursue and establish close cooperation with regard to the study and execution of all projects likely to have an effect on the regime of the shared watercourse.

(ii) Article 2 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, General provisions:

6. The Riparian Parties shall cooperate on the basis of equality and reciprocity, in particular through bilateral and multilateral agreements, in order to develop harmonized policies, programmes and strategies covering the relevant catchment areas, or parts thereof, aimed at the prevention, control and reduction of transboundary impact and aimed at the protection of the environment of transboundary waters or the environment influenced by such waters, including the marine environment.

(iii) Article 6 of the Bellagio Draft Agreement concerning the Use of Transboundary Groundwaters, 1989, Water quality protection:

1. The Parties undertake cooperatively to protect and to improve, insofar as practicable, the quality of transboundary aquifers and their waters in conjunction with their programmes for surface water quality control, and to avoid appreciable harm in or to the territories of the Parties.

(iv) Article 11 of the International Law Association Berlin Rules on Water Resources, 2004, Cooperation:

Basin States shall cooperate in good faith in the management of waters of an international drainage basin for the mutual benefit of the participating States.

XIII. Article 9: Regular exchange of data and information

(i) Article 18 of the Association of South-East Asian Nations Agreement on the Conservation of Nature and Natural Resources, 1985, Cooperative activities:

1. The Contracting Parties shall cooperate together and with the competent international organizations, with a view to coordinating their activities in the field of conservation of nature and management of natural resources and assisting each other in fulfilling their obligations under this Agreement.

2. To that effect, they shall endeavour:

(a) to collaborate in monitoring activities;

(b) to the greatest extent possible, coordinate their research activities;

(c) to use comparable or standardized research techniques and procedures with a view to obtaining comparable data;

(d) to exchange appropriate scientific and technical data, information and experience, on a regular basis;

(e) whenever appropriate, to consult and assist each other with regard to measures for the implementation of this Agreement.

3. In applying the principles of cooperation and coordination set forth above, the Contracting Parties shall forward to the Secretariat:

(a) information of assistance in the monitoring of the biological status of the natural living resources of the Region;

(b) information, including reports and publications of a scientific, administrative or legal nature, and in particular information on:

- measures taken by the Parties in pursuance of the provisions of this Agreement;
- the status of species included in Appendix 1;
- any other matter to which the Conference of the Parties may give special priority.

(ii) Article 3 of the Agreement between the Federal Republic of Nigeria and the Republic of Niger concerning the Equitable Sharing in the Development, Conservation and Use of their Common Water Resources, 1990:

1. The Contracting Parties undertake to collect, process and provide at regular intervals the Nigeria-Niger Joint Commission for Cooperation with all the data and information which, in the opinion of the Commission, are needed to arrive at equitable sharing determinations, and to monitor the continued viability thereof.

2. At the request of the Commission, the Contracting Parties shall:

(a) install in their territory the required measuring equipment, and protect such equipment from interference; and

(b) permit and facilitate inspections by the Commission of such equipment.

(iii) Article 3, paragraph 6 of the Revised Protocol on Shared Watercourses in the Southern African Development Community, 2000, General principles:

State Parties shall exchange available information and data regarding the hydrological, hydro geological, water quality, meteorological and environmental condition of shared watercourses.

(iv) Article 6 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, Exchange of information:

The Parties shall provide for the widest exchange of information, as early as possible, on issues covered by the provisions of this Convention.

(v) Article 13 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, Exchange of information between riparian parties:

1. The Riparian Parties shall, within the framework of relevant agreements or other arrangements according to article 9 of this Convention, exchange reasonably available data, inter alia, on:

(a) Environmental conditions of transboundary waters;

(b) Experience gained in the application and operation of best available technology and results of research and development;

(c) Emission and monitoring data;

(d) Measures taken and planned to be taken to prevent, control and reduce transboundary impact;

(e) Permits or regulations for waste-water discharges issued by the competent authority or appropriate body.

2. In order to harmonize emission limits, the Riparian Parties shall undertake the exchange of information on their national regulations.

3. If a Riparian Party is requested by another Riparian Party to provide data or information that is not available, the former shall endeavour to comply with the request but may condition its compliance upon the payment, by the requesting Party, of reasonable charges for collecting and, where appropriate, processing such data or information.

4. For the purposes of the implementation of this Convention, the Riparian Parties shall facilitate the exchange of best available technology, particularly through the promotion of: the commercial exchange of available technology; direct industrial contacts and cooperation, including joint ventures; the exchange of information and experience; and the provision of technical assistance. The Riparian Parties shall also undertake joint training programmes and the organization of relevant seminars and meetings.

(vi) Article 42, paragraph 3 of the International Law Association Berlin Rules on Water Resources, 2004, Transboundary aquifers:

In managing the waters of an aquifer referred to in paragraph 1, basin States shall consult and exchange information and data at the request of any one of them and shall cooperate in the collection and analyzing additional needed information pertinent to the obligations under these Rules.

XIV. Article 10: Monitoring

(i) Article 204 of the United Nations Convention on the Law of the Sea, 1982, Monitoring of the risks or effects of pollution:

1. States shall, consistent with the rights of other States, endeavour, as far as practicable, directly or through the competent international organizations, to observe, measure, evaluate and analyse, by recognized scientific methods, the risks or effects of pollution of the marine environment.

2. In particular, States shall keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine environment.

(ii) Article 4 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, Monitoring:

The Parties shall establish programmes for monitoring the conditions of transboundary waters.

(iii) Article 11, paragraph 1 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, Joint monitoring and assessment:

In the framework of general cooperation mentioned in article 9 of this Convention, or specific arrangements, the Riparian Parties shall establish and implement joint programmes for monitoring the conditions of transboundary waters, including floods and ice drifts, as well as transboundary impact.

(iv) Article 9 of the Convention on Cooperation for the Protection and Sustainable Use of the Danube, 1994, Monitoring programmes:

On the basis of their domestic activities, the Contracting Parties shall cooperate in the field of monitoring and assessment.

(1) For this aim, they shall:

- harmonize or make comparable their monitoring and assessment methods as applied on their domestic levels, in particular in the field of river quality, emission control, flood forecast and water balance, with a view to achieving comparable results to be introduced into the joint monitoring and assessment activities;
- develop concerted or joint monitoring systems applying stationary or mobile measurement devices, communication and data processing facilities;

- elaborate and implement joint programmes for monitoring the riverine conditions in the Danube catchment area concerning both water quality and quantity, sediments and riverine ecosystems, as a basis for the assessment of transboundary impacts such as transboundary pollution and changes of the riverine regimes as well as of water balances, floods and ice-hazards;

- develop joint or harmonized methods for monitoring and assessment of waste water discharges including processing, evaluation and documentation of data taking into account the branch-specific approach of emission limitation (Annex II, Part 1);

- elaborate inventories on relevant point sources including the pollutants discharged (emission inventories) and estimate the water pollution from non-point sources taking into account Annex II, Part 2; review these documents according to the actual state.

(2) In particular they shall agree upon monitoring points, river quality characteristics and pollution parameters regularly to be evaluated for the Danube River with a sufficient frequency taking into account the ecological and hydrological character of the watercourse concerned as well as typical emissions of pollutants discharged within the respective catchment area.

(3) The Contracting Parties shall establish, on the basis of a harmonized methodology, domestic water balances, as well as the general water balance of the Danube River Basin. As an input for this purpose the Contracting Parties to the extent necessary shall provide connecting data which are sufficiently comparable through the application of the harmonized methodology. On the same data base water balances can also be compiled for the main tributaries of Danube River.

(4) They shall periodically assess the quality conditions of Danube River and the progress made by their measures taken aiming at the prevention, control and reduction of transboundary impacts. The results will be presented to the public by appropriate publications.

(v) Article 11 of the Stockholm Convention on Persistent Organic Pollutants, 2001, Research, development and monitoring:

1. The Parties shall, within their capabilities, at the national and international levels, encourage and/or undertake appropriate research, development, monitoring and cooperation pertaining to persistent organic pollutants and, where relevant, to their alternatives and to candidate persistent organic pollutants, including on their:

(a) Sources and releases into the environment;

(b) Presence, levels and trends in humans and the environment;

(c) Environmental transport, fate and transformation;

(d) Effects on human health and the environment;

(e) Socio-economic and cultural impacts;

(f) Release reduction and/or elimination; and

(g) Harmonized methodologies for making inventories of generating sources and analytical techniques for the measurement of releases.

2. In undertaking action under paragraph 1, the Parties shall, within their capabilities:

(a) Support and further develop, as appropriate, international programmes, networks and organizations aimed at defining, conducting, assessing and financing research, data collection and monitoring, taking into account the need to minimize duplication of effort;

(b) Support national and international efforts to strengthen national scientific and technical research capabilities, particularly in developing countries and countries with economies in transition, and to promote access to, and the exchange of, data and analyses;

(c) Take into account the concerns and needs, particularly in the field of financial and technical resources, of developing countries and countries with economies in transition and cooperate in improving their capability to participate in the efforts referred to in subparagraphs (a) and (b);

(d) Undertake research work geared towards alleviating the effects of persistent organic pollutants on reproductive health;

(e) Make the results of their research, development and monitoring activities referred to in this paragraph accessible to the public on a timely and regular basis; and

(f) Encourage and/or undertake cooperation with regard to storage and maintenance of information generated from research, development and monitoring.

(vi) Article 2 of the Agreement between the Government of the People's Republic of China and the Government of Mongolia on the Protection and Utilization of Transboundary Waters, 1994:

For the purpose of protection and equitable and rational use of transboundary waters, the Two Contracting Parties may conduct cooperation in the following fields:

1. Investigation and survey of dynamics, resources and quality of boundary waters;

2. Examination and measurement of changes of the boundary lake and river basins;

3. Investigation, protection and development of transboundary waters and aquatic animal and plant resources;

4. Monitoring and reduction of pollution to the transboundary waters; and

5. Maintenance and rational use of water conservation projects and flood-prevention facilities involving transboundary waters.

(vii) Article 3 of the Agreement between the Government of the People's Republic of China and the Government of Mongolia on the Protection and Utilization of Transboundary Waters, 1994:

For the implementation of the cooperation provided for in Article 2 of this Agreement, the Two Parties may conduct the following activities:

1. Monitoring of the quality, dynamics and resources of the transboundary waters and changes of the boundary rivers and lakes and their basins at stations, posts or locations designated by the Two Parties;

2. Technological exchanges including exchanges of technical materials, information and maps within the framework of the cooperation;

3. Joint investigation and survey by delegations and experts; and

4. Establishment of joint research and experiment centers or groups.

(viii) Article VIII of the Bellagio Draft Agreement concerning the Use of Transboundary Groundwaters, 1989, Comprehensive management plans:

1. For each declared Transboundary Groundwater Conservation Area, the Commission shall prepare a Comprehensive Management Plan for the rational development, use, protection and control of the waters in the Transboundary Groundwater Conservation Area.

2. A Comprehensive Management Plan may:

a. prescribe measures to prevent, eliminate or mitigate degradation of transboundary groundwater quality, and for that purpose may:

...

(4) propose a scheme for monitoring water quality conditions including the placement and operation of test wells and for remedial actions where required, including pretreatment and effluent discharge limitations and charges;

(ix) Article 17, paragraph 4 of the International Law Association Berlin Rules on Water Resources, 2004, The right of access to water:

States shall monitor and review periodically, through a participatory and transparent process, the realization of the right of access to water.

XV. Article 11: Relationship between different kinds of utilization

(i) Article 6 of the Agreement between the Federal Republic of Nigeria and the Republic of Niger concerning the Equitable Sharing in the Development, Conservation and Use of their Common Water Resources, 1990:

A water use existing at the time an equitable sharing determination is made shall take precedence over a future use, provided the existing use is beneficial to both Contracting Parties and reasonable under the circumstances.

(ii) Article 7 of the Agreement between the Federal Republic of Nigeria and the Republic of Niger concerning the Equitable Sharing in the Development, Conservation and Use of their Common Water Resources, 1990:

A water use existing at the time an equitable sharing determination is made shall take precedence over a competing existing use which came into being later in time, provided that:

(a) the use prior in time is beneficial to both Contracting Parties and reasonable under the circumstances; and

(b) the weighting of the factors under Article 5 does not warrant accommodation of the later use, in whole or in part.

(iii) Article 3 of the International Law Association Berlin Rules on Water Resources, 2004, Definitions:

For the purposes of these Articles, these terms have the following meanings:

20. "Vital human needs" means waters used for immediate human survival, including drinking, cooking, and sanitary needs, as well as water needed for the immediate sustenance of a household.

(iv) Article 1 of the International Law Association Berlin Rules on Water Resources, 2004, Preferences among uses:

1. In determining an equitable and reasonable use, States shall first allocate waters to satisfy vital human needs.

2. No other use or category of uses shall have an inherent preference over any other use or category of uses.

XVI. Article 14: Prevention, reduction and control of pollution

(i) Article 8, paragraph 1 of the Association of South-East Asian Nations Agreement on the Conservation of Nature and Natural Resources, 1985, Water:

The Contracting Parties shall, in view of the role of water in the functioning of natural ecosystems, take all appropriate measures towards the conservation of their underground and surface water resources.

(ii) Article 11 of the Association of South-East Asian Nations Agreement on the Conservation of Nature and Natural Resources, 1985, Pollution:

The Contracting Parties, recognizing the adverse effect that polluting discharges or emissions may have on natural processes and the functioning of natural ecosystems as well as on each of the individual ecosystem components, especially animal and plants species, shall endeavour to prevent, reduce and control such discharges, emissions or applications in particular by:

(a) submitting activities likely to cause pollution of the air, soil, freshwater, or the marine environment, to controls which shall take into consideration both the cumulative effects of the pollutants concerned and the self-purificating aptitude of the recipient natural environment;

(b) making such controls conditional on, inter alia, appropriate treatment of polluting emissions; and

(c) establishing national environmental quality monitoring programmes, particular attention being paid to the effects of pollution on

natural ecosystems, and cooperation in such programmes for the Region as a whole.

(iii) Article 20 of the Association of South-East Asian Nations Agreement on the Conservation of Nature and Natural Resources, 1985, Transfrontier environmental effects:

1. Contracting Parties have in accordance with generally accepted principles of international law the responsibility of ensuring that activities under their jurisdiction or control do not cause damage to the environment or the natural resources under the jurisdiction of other Contracting Parties or of areas beyond the limits of national jurisdiction.

2. In order to fulfil this responsibility, Contracting Parties shall avoid to the maximum extent possible and reduce to the minimum extent possible adverse environmental effects of activities under their jurisdiction or control, including effects on natural resources, beyond the limits of their national jurisdiction.

(iv) Article 2, paragraph 2 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, General provisions:

The Parties shall, in particular, take all appropriate measures:

...

(b) To ensure that transboundary waters are used with the aim of ecologically sound and rational water management, conservation of water resources and environmental protection;

...

(d) To ensure conservation and, where necessary, restoration of ecosystems.

(v) Article 3, paragraph 1 of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1992, Prevention, control and reduction:

To prevent, control and reduce transboundary impact, the Parties shall develop, adopt, implement and, as far as possible, render compatible relevant legal, administrative, economic, financial and technical measures, in order to ensure, inter alia, that:

...

(k) Additional specific measures are taken to prevent the pollution of groundwaters;

(vi) Article 2 of the Convention on Cooperation for the Protection and Sustainable Use of the Danube, 1994, Objectives and principles of cooperation:

(3) To this end the Contracting Parties, taking into account the urgency of water pollution abatement measures and of rational, sustainable water use, shall set priorities as appropriate and shall strengthen, harmonize and coordinate measures taken and planned to be taken at the domestic and international level throughout the Danube Basin aiming at sustainable development and environmental protection of the Danube River. This objective

in particular is directed to ensure the sustainable use of water resources for municipal, industrial and agricultural purposes as well as the conservation and restoration of ecosystems and to cover also other requirements occurring as to public health.

...

(5) Water management cooperation shall be oriented on sustainable water management, that means on the criteria of a stable, environmentally sound development, which are at the same time directed to:

– maintain the overall quality of life;

– maintain continuing access to natural resources;

– avoid lasting environmental damage and protect ecosystems;

– exercise preventive approach.

(vii) Article 6 of the Convention on Cooperation for the Protection and Sustainable Use of the Danube, 1994, Specific water resources protection measures:

The Contracting Parties shall take appropriate measures aiming at the prevention or reduction of transboundary impacts and at a sustainable and equitable use of water resources as well as at the conservation of ecological resources, especially:

(a) enumerate groundwater resources subject to a long-term protection as well as protection zones valuable for existing or future drinking water supply purposes;

(b) prevent the pollution of groundwater resources, especially those in a long-term perspective reserved for drinking water supply, in particular caused by nitrates, plant protection agents and pesticides as well as other hazardous substances;

(c) minimize by preventive and control measures the risks of accidental pollution;

(d) take into account possible influences on the water quality resulting from planned activities and ongoing measures pursuant to Article 3, paragraph 2;

(e) evaluate the importance of different biotope elements for the riverine ecology and propose measures for improving the aquatic and littoral ecological conditions.

(viii) Article 14 of the Agreement on Cooperation for the Protection and Sustainable Use of the Waters of the Spanish-Portuguese Hydrographic Basins, 1998, Prevention and control of pollution:

1. The Parties shall coordinate procedures for the prevention and control of pollution produced by limited or extensive emissions and shall adopt in their territory all measures deemed necessary to protect the transborder waters in accordance with Community law, in particular by establishing ceilings for emissions and quality targets for the surrounding environment.

2. Where relevant, the Parties shall coordinate the measures necessary to prevent, eliminate, mitigate and control the pollution from terrestrial sources of estuaries and adjacent territorial and marine waters in accordance with the jurisdictional competence of each State.

(ix) Article 4 of the Revised Protocol on Shared Watercourses in the Southern African Development Community, 2000, Specific provisions:

2. Environmental Protection and Preservation

(a) Protection and preservation of ecosystems

State Parties shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of a shared watercourse.

(b) Prevention, reduction and control of pollution

(i) State Parties shall, individually and, where appropriate, jointly, prevent, reduce and control the pollution and environmental degradation of a shared watercourse that may cause significant harm to other Watercourse States or to their environment, including harm to human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse.

(ii) Watercourse States shall take steps to harmonize their policies and legislation in this connection.

(iii) State Parties shall, at the request of any one or more of them, consult with a view to arriving at mutually agreeable measures and methods to prevent, reduce and control pollution of a shared watercourse, such as:

(aa) setting joint water quality objectives and criteria;

(bb) establishing techniques and practices to address pollution from point and non-point sources;

(cc) establishing lists of substances the introduction of which, into the waters of a shared watercourse, is to be prohibited, limited, investigated or monitored.

(c) Introduction of alien or new species

State Parties shall take all measures necessary to prevent the introduction of species, alien or new, into a shared watercourse which may have effects detrimental to the ecosystems of the watercourse resulting in significant harm to other Watercourse States.

(x) Article 6 of the Tripartite Interim Agreement Between the Republic of Mozambique, the Republic of South Africa and the Kingdom of Swaziland for Cooperation on the Protection and Sustainable Utilisation of the Water Resources of the Incomati and Maputo Watercourses, 2002, Protection of the environment:

1. The Parties shall, individually and, where appropriate, jointly, protect and preserve the aquatic environment of the Incomati and Maputo

watercourses, taking into account generally accepted international rules and standards.

2. The Parties shall, individually and, where appropriate, jointly, take all measures to protect and preserve the ecosystems of the Incomati and Maputo watercourses.

3. The Parties shall take all measures necessary to prevent the introduction of species, alien or new, into the Incomati and Maputo watercourses, which may have effects detrimental to the ecosystems of the watercourses resulting in significant harm to other Parties.

(xi) Article VI of the Bellagio Draft Agreement concerning the Use of Transboundary Groundwaters, 1989, Water quality protection:

1. The Parties undertake cooperatively to protect and to improve, insofar as practicable, the quality of transboundary aquifers and their waters in conjunction with their programmes for surface water quality control, and to avoid appreciable harm in or to the territories of the Parties.

2. The Governments shall promptly inform the Commission of any actual or planned, significantly polluting discharge into transboundary groundwaters or recharge areas, or of other activity with the potential for significant leaching into transboundary groundwaters.

3. The Commission shall without delay consider the gravity of any situation indicating significant groundwater contamination, or the threat thereof, in any part of the border region in accordance with the provisions of Article VII.

(xii) Charter on Groundwater Management, 1989, adopted by the Economic Commission for Europe at its forty-fourth session, Groundwater strategies:

1. As groundwater should be recognized as a natural resource with economic and ecological value, groundwater strategies should aim at the sustainable use of groundwater and preservation of its quality. These strategies should be flexible so as to respond to changing conditions and various regional and local situations.

2. Groundwater pollution is interrelated with the pollution of other environmental media (surface water, soils, atmosphere). Groundwater protection planning should be incorporated into general environmental protection planning.

3. Protection measures aimed at prevention of groundwater pollution and overuse should be the basic tools for groundwater management. Such protection measures include, inter alia, monitoring of groundwaters, development of aquifer vulnerability maps, regulations for industry and waste disposal sites paying due account to groundwater protection considerations, geo-ecological assessment of the impact of industrial and agricultural activities on groundwaters, and zoning of groundwater protection areas.

(xiii) Article 22 of the International Law Association Berlin Rules on Water Resources, 2004, Ecological integrity:

States shall take all appropriate measures to protect the ecological integrity necessary to sustain ecosystems dependent on particular waters.

(xiv) Article 41 of the International Law Association Berlin Rules on Water Resources, 2004, Protecting aquifers:

1. States shall take all appropriate measures to prevent, insofar as possible, any pollution of, and the degradation of the hydraulic integrity of, aquifers.

2. States in fulfilling their obligation to prevent pollution of an aquifer shall take special care to prevent, eliminate, reduce, or control:

a. The direct or indirect discharge of pollutants, whether from point or non-point sources;

b. The injection of water that is polluted or would otherwise degrade an aquifer;

c. Saline water intrusion; or

d. Any other source of pollution.

3. States shall take all appropriate measures to abate the effects of the pollution of aquifers.

4. States shall integrate aquifers into their programmes of general environmental protection, including but not limited to:

a. The management of other waters;

b. Land use planning and management; and

c. Other programmes of general environmental protection.

5. States shall specially protect sites where groundwater is withdrawn from or recharged to an aquifer.

XVII. Article 15: Management

(i) Article 4 of the Revised Protocol on Shared Watercourses in the Southern African Development Community, 2000, Specific provisions:

3. Management of Shared Watercourses

(a) Management

Watercourse States shall, at the request of any of them, enter into consultations concerning the management of a shared watercourse, which may include the establishment of a joint management mechanism.

(ii) Article 10, paragraph 1 of the Arrangement on the Protection, Utilization and Recharge of the Franco-Swiss Genevese Aquifer, 1977, Forecasts — Reserved water volumes:

In order to ensure the rational management of the recharge installation, at the beginning of the year each user or group of users shall announce to the Commission their estimated volume of extractions from the aquifer for the next 12 months. Such forecasts are designated as "reserved water volume" ...

(iii) Article 2, paragraph 2 of the Convention on Cooperation for the Protection and Sustainable Use of the Danube, 1994, Objectives and principles of cooperation:

The Contracting Parties pursuant to the provisions of this Convention shall cooperate on fundamental water management issues and take all appropriate legal, administrative and technical measures, to at least maintain and improve the current environmental and water quality conditions of the Danube River and of the waters in its catchment area and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused.

(iv) Article 6, paragraph 5 of the 1999 Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Targets and target dates:

In order to promote the achievement of the targets referred to in paragraph 2 of this article, the Parties shall each:

(a) Establish national or local arrangements for coordination between their competent authorities;

(b) Develop water management plans in transboundary, national and/or local contexts, preferably on the basis of catchment areas or groundwater aquifers. In doing so, they shall make appropriate practical and/or other provisions for public participation, within a transparent and fair framework, and shall ensure that due account is taken of the outcome of the public participation. Such plans may be incorporated in other relevant plans, programmes or documents which are being drawn up for other purposes, provided that they enable the public to see clearly the proposals for achieving the targets referred to in this article and the respective target dates;

(c) Establish and maintain a legal and institutional framework for monitoring and enforcing standards for the quality of drinking water;

(d) Establish and maintain arrangements, including, where appropriate, legal and institutional arrangements, for monitoring, promoting the achievement of and, where necessary, enforcing the other standards and levels of performance for which targets referred to in paragraph 2 of this article are set.

(v) Article 7, paragraph 3 of the Revised African Convention on the Conservation of Nature and Natural Resources, 2003, Water:

Where surface or underground water resources and related ecosystems, including wetlands, are transboundary to two or more of the Parties, the latter shall act in consultation, and if the need arises, set up inter-State Commissions for their rational management and equitable utilization and to resolve disputes arising from the use of these resources, and for the cooperative development, management and conservation thereof.

(vi) Section VI of the Charter on Groundwater Management, 1989, adopted by the Economic Commission for Europe at its forty-fourth session, Competence:

1. Water authorities or coordinating bodies should have the competence to integrate all aspects of water management and should be rendered competent to arbitrate among the various competing demands, and diverging interests

regarding groundwater abstraction and use, both short- and long-term. The authority or body should collaborate with other authorities, competent for public health, land-use planning, soils' management, waste management, etc. Legislation should provide administrative mechanisms for emergency cases and should empower the competent authorities to act immediately against damage.

2. The territorial competence of such authorities with respect to groundwater management should not necessarily be limited to either administrative boundaries or catchment areas but should allow for encompassing, as appropriate, management of aquifers in their entirety. The work of these authorities should be supported and facilitated by providing them with the resources necessary for the proper discharge of their functions.

3. Regulations, within the framework of legislation mentioned above, should define the actions to be taken by competent authorities in case of accidental pollution or other emergencies impacting on groundwater.

(vii) Principle No. 1 of the Dublin Statement on Water and Sustainable Development, 1992, Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment:

Since water sustains life, effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or groundwater aquifer.

(viii) Article 38 of the International Law Association Berlin Rules on Water Resources, 2004, Precautionary management of aquifers:

States, in accordance with the precautionary approach, shall take early action and develop long-term plans to ensure the sustainable use of groundwater and of the aquifers in which the groundwater is contained.

(ix) Article 7 of the Revised African Convention on the Conservation of Nature and Natural Resources, 2003, Water:

1. The Parties shall manage their water resources so as to maintain them at the highest possible quantitative and qualitative levels. They shall, to that effect, take measures designed to:

a) maintain water-based essential ecological processes as well as to protect human health against pollutants and water-borne diseases,

b) prevent damage that could affect human health or natural resource in another State by the discharge of pollutants, and

c) prevent excessive abstraction, to the benefit of downstream communities and States.

2. The Parties shall establish and implement policies for the planning, conservation, management, utilization and development of underground and surface water, as well as the harvesting and use of rain water, and shall endeavour to guarantee for their populations a sufficient and continuous supply of suitable water, taking appropriate measures with due regard to:

a) the study of water cycles and the investigation of each catchment area,

b) the integrated management of water resources,

c) the conservation of forested and other catchment areas and the coordination and planning of water resources development projects,

d) the inventory and management of all water resources, including the administration and control of all water utilization, and

e) the prevention and control of water pollution through, inter alia, the establishment of effluent and water quality standards.

XVIII. Article 17: Planned activities

(i) Article 2, paragraph 2 of the Convention on Environmental Impact Assessment in a Transboundary Context, 1991, General provision:

Each Party shall take the necessary legal, administrative or other measures to implement the provisions of this Convention, including, with respect to proposed activities listed in Appendix I that are likely to cause significant adverse transboundary impact, the establishment of an environmental impact assessment procedure that permits public participation and preparation of the environmental impact assessment documentation described in Appendix II.

(ii) Annex I to the Convention on Environmental Impact Assessment in a Transboundary Context, 1991:

12. Groundwater abstraction activities or artificial groundwater recharge schemes where the annual volume of water to be abstracted or recharged amounts to 10 million cubic metres or more.

(iii) Annex III to the Tripartite Interim Agreement between the Republic of Mozambique and the Republic of South Africa and the Kingdom of Swaziland for Cooperation on the Protection and Sustainable Utilization of the Water Resources of the Incomati and Maputo Watercourses, 2002, Transboundary impact:

...

The projects and activities referred to in Article 13(1) of the Agreement are the following:

...

(g) groundwater abstraction facilities, regardless of the use or destination of the water, above 3.5 million cubic metres per year;

(iv) Article 31 of the International Law Association Berlin Rules on Water Resources, 2004. Assessment of the impacts of any programme, project, or activity shall include, among others:

i. Where appropriate, an outline for monitoring and management programmes and plans for post-project analysis;

(v) Article 39 of the International Law Association Berlin Rules on Water Resources, 2004, Duty to acquire information:

In order to comply with this Chapter, States shall take all appropriate steps to acquire the information necessary to manage groundwater and aquifers efficiently and effectively, including:

a. Monitoring groundwater levels, pressures, and quality;

b. Developing aquifer vulnerability maps;

c. Assessing the impacts on groundwater and aquifers of industrial, agricultural, and other activities; and

d. Any other measures appropriate to the circumstances of the aquifer.

XIX. Article 18: Scientific and technical assistance to developing States

(i) Article 202 of the United Nations Convention on the Law of the Sea, 1982, Scientific and technical assistance to developing States:

States shall, directly or through competent international organizations:

a. promote programmes of scientific, educational, technical and other assistance to developing States for the protection and preservation of the marine environment and the prevention, reduction and control of marine pollution. Such assistance shall include, inter alia:

(i) training of their scientific and technical personnel;

(ii) facilitating their participation in relevant international programmes;

(iii) supplying them with necessary equipment and facilities;

(iv) enhancing their capacity to manufacture such equipment;

(v) advice on and developing facilities for research, monitoring, educational and other programmes;

b. provide appropriate assistance, especially to developing States, for the minimization of the effects of major incidents which may cause serious pollution of the marine environment;

c. provide appropriate assistance, especially to developing States, concerning the preparation of environmental assessments.

(ii) Article 12 of the Stockholm Convention on Persistent Organic Pollutants, 2001, Technical assistance:

1. The Parties recognize that rendering of timely and appropriate technical assistance in response to requests from developing country Parties and Parties with economies in transition is essential to the successful implementation of this Convention.

2. The Parties shall cooperate to provide timely and appropriate technical assistance to developing country Parties and Parties with economies in

transition, to assist them, taking into account their particular needs, to develop and strengthen their capacity to implement their obligations under this Convention.

3. In this regard, technical assistance to be provided by developed country Parties, and other Parties in accordance with their capabilities, shall include, as appropriate and as mutually agreed, technical assistance for capacity-building relating to implementation of the obligations under this Convention. Further guidance in this regard shall be provided by the Conference of the Parties.

4. The Parties shall establish, as appropriate, arrangements for the purpose of providing technical assistance and promoting the transfer of technology to developing country Parties and Parties with economies in transition relating to the implementation of this Convention. These arrangements shall include regional and subregional centres for capacity-building and transfer of technology to assist developing country Parties and Parties with economies in transition to fulfil their obligations under this Convention. Further guidance in this regard shall be provided by the Conference of the Parties.

5. The Parties shall, in the context of this Article, take full account of the specific needs and special situation of least developed countries and small island developing States in their actions with regard to technical assistance.

(iii) Article 5 of the United Nations Framework Convention on Climate Change, 1992, Research and systematic observation:

In carrying out their commitments under Article 4, paragraph 1 (g), the Parties shall:

(a) Support and further develop, as appropriate, international and intergovernmental programmes and networks or organizations aimed at defining, conducting, assessing and financing research, data collection and systematic observation, taking into account the need to minimize duplication of effort;

(b) Support international and intergovernmental efforts to strengthen systematic observation and national scientific and technical research capacities and capabilities, particularly in developing countries, and to promote access to, and the exchange of, data and analyses thereof obtained from areas beyond national jurisdiction; and

(c) Take into account the particular concerns and needs of developing countries and cooperate in improving their endogenous capacities and capabilities to participate in the efforts referred to in subparagraphs (a) and (b) above.

(iv) Article 6 of the United Nations Framework Convention on Climate Change, 1992, Education, training and public awareness:

In carrying out their commitments under Article 4, paragraph 1(i), the Parties shall:

(a) Promote and facilitate at the national and, as appropriate, subregional and regional levels, and in accordance with national laws and regulations, and within their respective capacities:

(i) The development and implementation of educational and public-awareness programmes on climate change and its effects;

(ii) Public access to information on climate change and its effects;

(iii) Public participation in addressing climate change and its effects and developing adequate responses; and

(iv) Training of scientific, technical and managerial personnel.

(b) Cooperate in and promote, at the international level, and, where appropriate, using existing bodies:

(i) The development and exchange of educational and public awareness material on climate change and its effects; and

(ii) The development and implementation of education and training programmes, including the strengthening of national institutions and the exchange or secondment of personnel to train experts in this field, in particular for developing countries.

(v) Article 4 of the Vienna Convention for the Protection of the Ozone Layer, 1985, Cooperation in the legal, scientific and technical fields:

1. The Parties shall facilitate and encourage the exchange of scientific, technical, socio-economic, commercial and legal information relevant to this Convention as further elaborated in annex II. Such information shall be supplied to bodies agreed upon by the Parties. Any such body receiving information regarded as confidential by the supplying Party shall ensure that such information is not disclosed and shall aggregate it to protect its confidentiality before it is made available to all Parties.

2. The Parties shall cooperate, consistent with their national laws, regulations and practices and taking into account in particular the needs of the developing countries, in promoting, directly or through competent international bodies, the development and transfer of technology and knowledge. Such cooperation shall be carried out particularly through:

(a) Facilitation of the acquisition of alternative technologies by other Parties;

(b) Provision of information on alternative technologies and equipment, and supply of special manuals or guides to them;

(c) The supply of necessary equipment and facilities for research and systematic observations;

(d) Appropriate training of scientific and technical personnel.

(vi) Annex II to the Vienna Convention for the Protection of the Ozone Layer, 1985, Information exchange:

1. The Parties to the Convention recognize that the collection and sharing of information is an important means of implementing the objectives of this Convention and of assuring that any actions that may be taken are appropriate and equitable. Therefore, Parties shall exchange scientific, technical, socio-economic, business, commercial and legal information.

2. The Parties to the Convention, in deciding what information is to be collected and exchanged, should take into account the usefulness of the information and the costs of obtaining it. The Parties further recognize that cooperation under this annex has to be consistent with national laws, regulations and practices regarding patents, trade secrets, and protection of confidential and proprietary information.

3. Scientific information

– This includes information on:

(a) Planned and ongoing research, both governmental and private, to facilitate the coordination of research programmes so as to make the most effective use of available national and international resources;

(b) The emission data needed for research;

(c) Scientific results published in peer-reviewed literature on the understanding of the physics and chemistry of the Earth's atmosphere and of its susceptibility to change, in particular on the state of the ozone layer and effects on human health, environment and climate which would result from changes on all time-scales in either the total column content or the vertical distribution of ozone;

(d) The assessment of research results and the recommendation for future research.

4. Technical information

– This includes information on:

(a) The availability and cost of chemical substitutes and of alternative technologies to reduce the emissions of ozonemodifying substances and related planned and ongoing research;

(b) The limitations and any risks involved in using chemical or other substitutes and alternative technologies.

5. Socio-economic and commercial information on the substance referred to in annex I

– This includes information on:

(a) Production and production capacity;

(b) Use and use patterns;

(c) Imports/exports;

(d) The costs, risks and benefits of human activities which may indirectly modify the ozone layer and of the impacts of regulatory actions taken or being considered to control these activities.

6. Legal information

– This includes information on:

(a) National laws, administrative measures and legal research relevant to the protection of the ozone layer;

(b) International agreements, including bilateral agreements relevant to the protection of the ozone layer;

(c) Methods and terms of licensing and availability of patents relevant to the protection of the ozone layer.

XX. Article 19: Emergency situations

Article 13 of the Framework Convention for the Protection of the Marine Environment of the Caspian Sea, 2003, Environmental emergencies:

1. The Contracting Parties shall take all appropriate measures and cooperate to protect human beings and the marine environment against consequences of natural or man-made emergencies. To this end, preventive, preparedness and response measures, including restoration measures, shall be applied.

2. For the purpose of undertaking preventive measures and setting up preparedness measures, the Contracting Party of origin shall identify hazardous activities within its jurisdiction, capable of causing environmental emergencies, and shall ensure that other Contracting Parties are notified of any such proposed or existing activities. The Contracting Parties shall agree to carry out environmental impact assessment of hazardous activities, and to implement risk-reducing measures.

3. The Contracting Parties shall cooperate for the setting up of early warning systems for industrial accidents and environmental emergencies. In the event of an environmental emergency, or imminent threat thereof, the Contracting Party of origin shall ensure that the Contracting Parties likely to be affected, are, without delay, notified at appropriate levels.

4. The Contracting Parties shall take all appropriate measures to establish and maintain adequate emergency preparedness measures, including measures to ensure that adequate equipment and qualified personnel are readily available, to respond to environmental emergencies.